

1. Definition of Public Goods

Public Goods are goods with benefits that cannot be withheld from those who do not pay and are shared by large groups of consumers.

Examples: Television and radio transmissions. Quantity of programs introduced per day or month can be enjoyed by a large number of consumers. When an additional viewer opens TV, the quantity of programming used by other viewers is not reduced. National defense and roads are other examples.

2. The Characteristics of Public Goods

(1) *Non-rival in consumption*: meaning that a given quantity of a public good can be enjoyed by more than one consumer without decreasing the amounts enjoyed by rival consumers.

- Zero marginal cost of accommodating an additional consumer.

(2) *Non-exclusive*: meaning it is too costly to exclude those who refuse to pay from enjoying the benefits.

2. The Characteristics of Public Goods

- Practically speaking, public goods are non-rival in consumption need not necessarily be subject to non-exclusion. Example: Roads and TV broadcasting.

3. Pure Public and Pure Private Goods

(1) *Pure public good* : non-rival in consumption for an entire population of consumers, non-exclusive.

- Results in widely consumed external benefits
- Not divisible into units that can be apportioned

(2) *Pure private good* : provides benefits only to the person who acquires the good, not anyone else; is rival in consumption.

- Results in neither positive or negative externalities

3. Pure Public and Pure Private Goods

Examples of Pure and Public Goods Bread versus Heat

- Bread: Clearly a pure private good because there is the ability to exclude and there is rivalry.
- Heat: Clearly a pure public good because there is no ability to exclude and there is no rivalry.

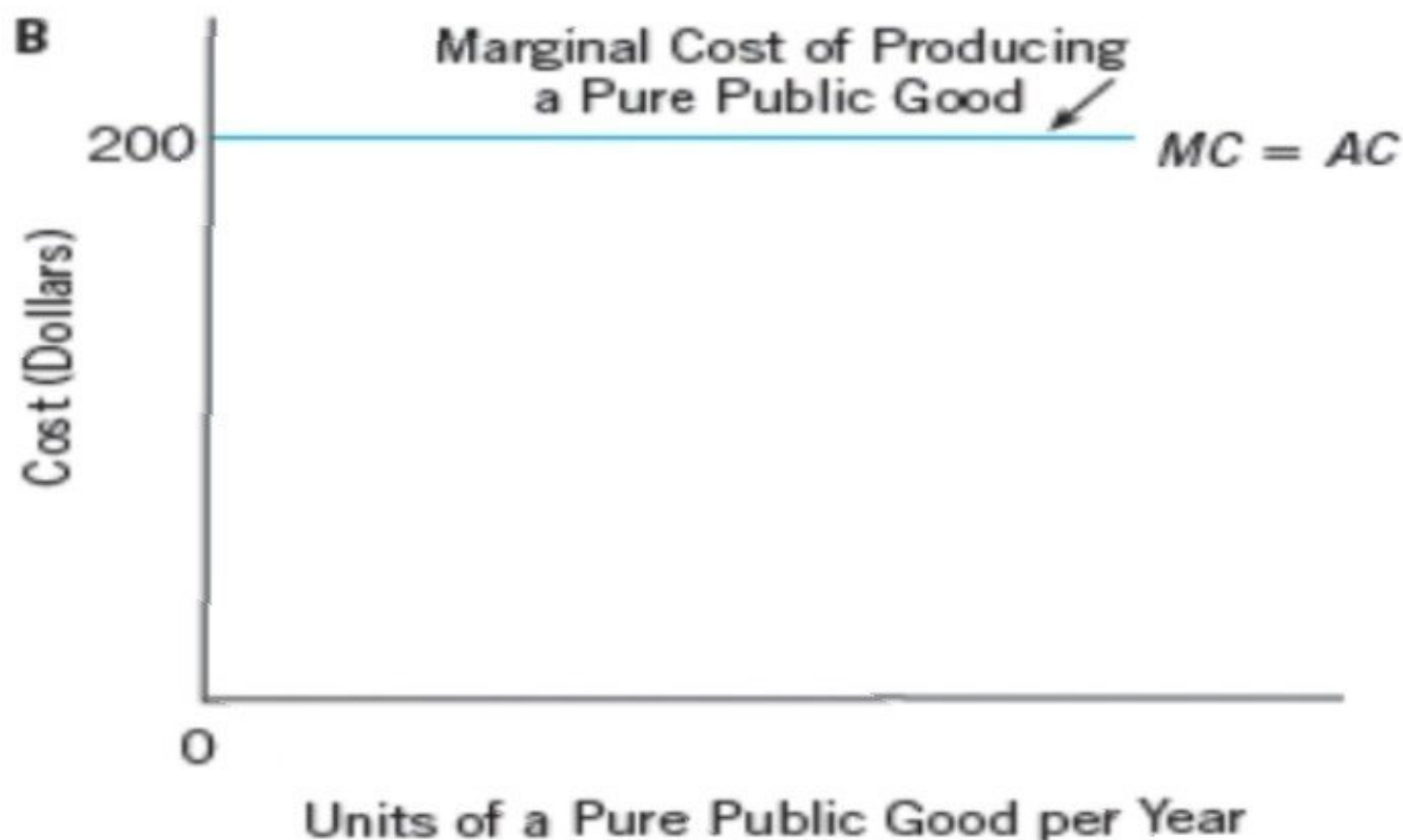
4. Marginal Cost of Consuming a Public Good



4. Marginal Cost of Consuming a Public Good

The diagram in A shows that the marginal cost of allowing an additional person to consume a given quantity of a pure public good falls to zero after it is made available to any one person.

4. Marginal Cost of Producing a Public Good



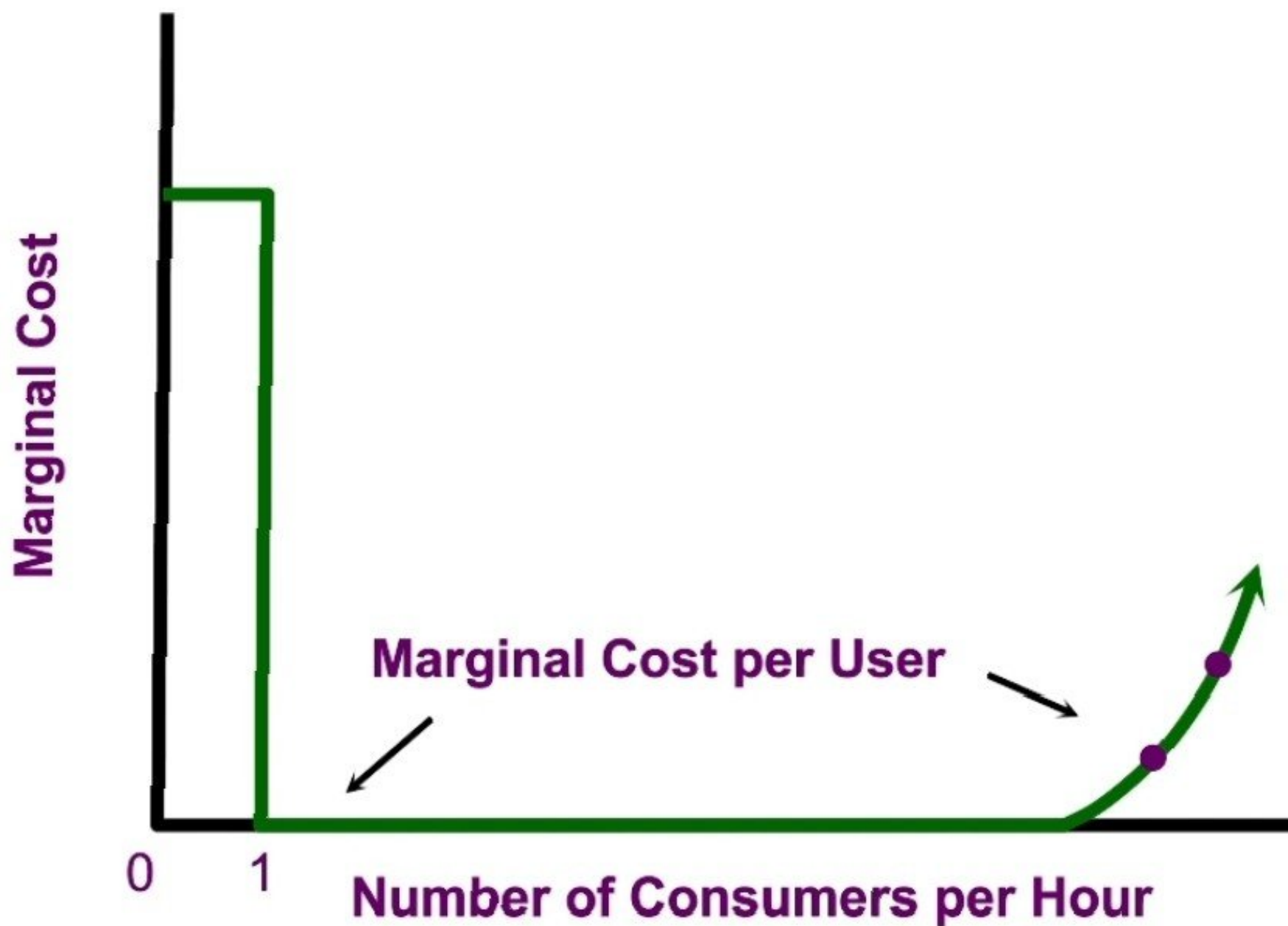
4. Marginal Cost of Producing a Public Good

The graph in **B** shows that the marginal cost of producing the good is always positive. In this case, the marginal cost of each extra unit of the good is LE 200.

Congestible Public Goods

- (1) Goods for which crowding or congestion reduces the benefits to existing consumers when more consumers are accommodated.
- (2) Marginal cost of accommodating an additional consumer is not zero after the point of congestion is reached.
- (3 **Example**, a user of a congested road decreases the benefits to existing users by slowing traffic, increasing accident risk.

Figure 4.2 A Congestible Public Good



Congestible Public Goods

- The marginal cost of allowing additional users to consume the congestible public good falls to zero after the good is made available to any one user.
- But then rises above zero after N^* users are accommodated per hour.

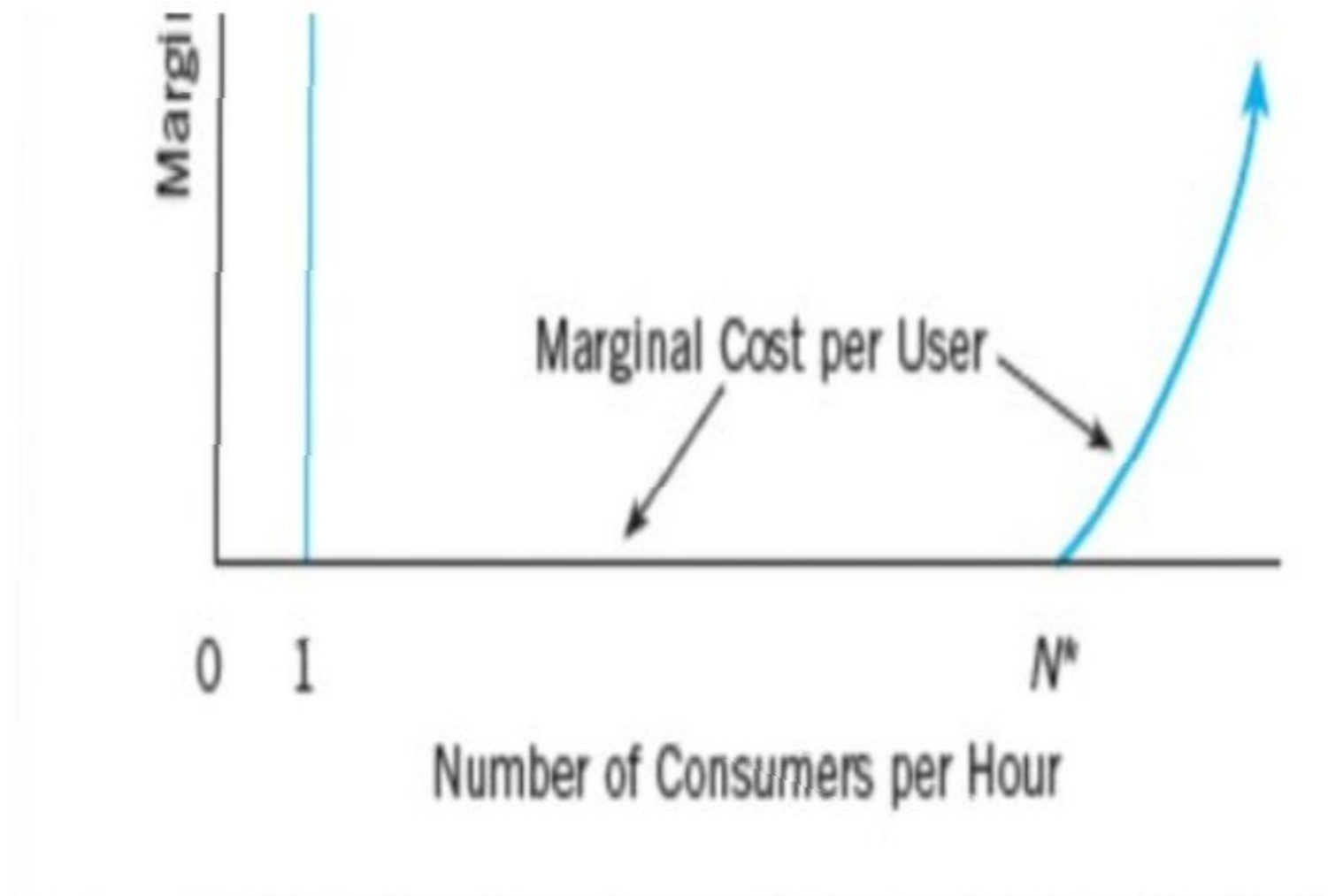
Question: Suppose the services of a road are subject to congestion after 50,000 vehicles per hour enter the road. Assume that it is feasible to price road services on an hourly basis. Use a graph like that drawn in Figure 4.2 to show how the services of the road should be priced per hour when fewer than and more than 50,000 vehicles per hour are expected so as to achieve efficiency.

Congestible Public Goods

ANSWER

- At less than 50,000 vehicles per hour, no toll is required to achieve efficiency.
- When traffic rises above 50,000 vehicles per hour, the toll should be set at the marginal congestion cost.

Congestible Public Goods



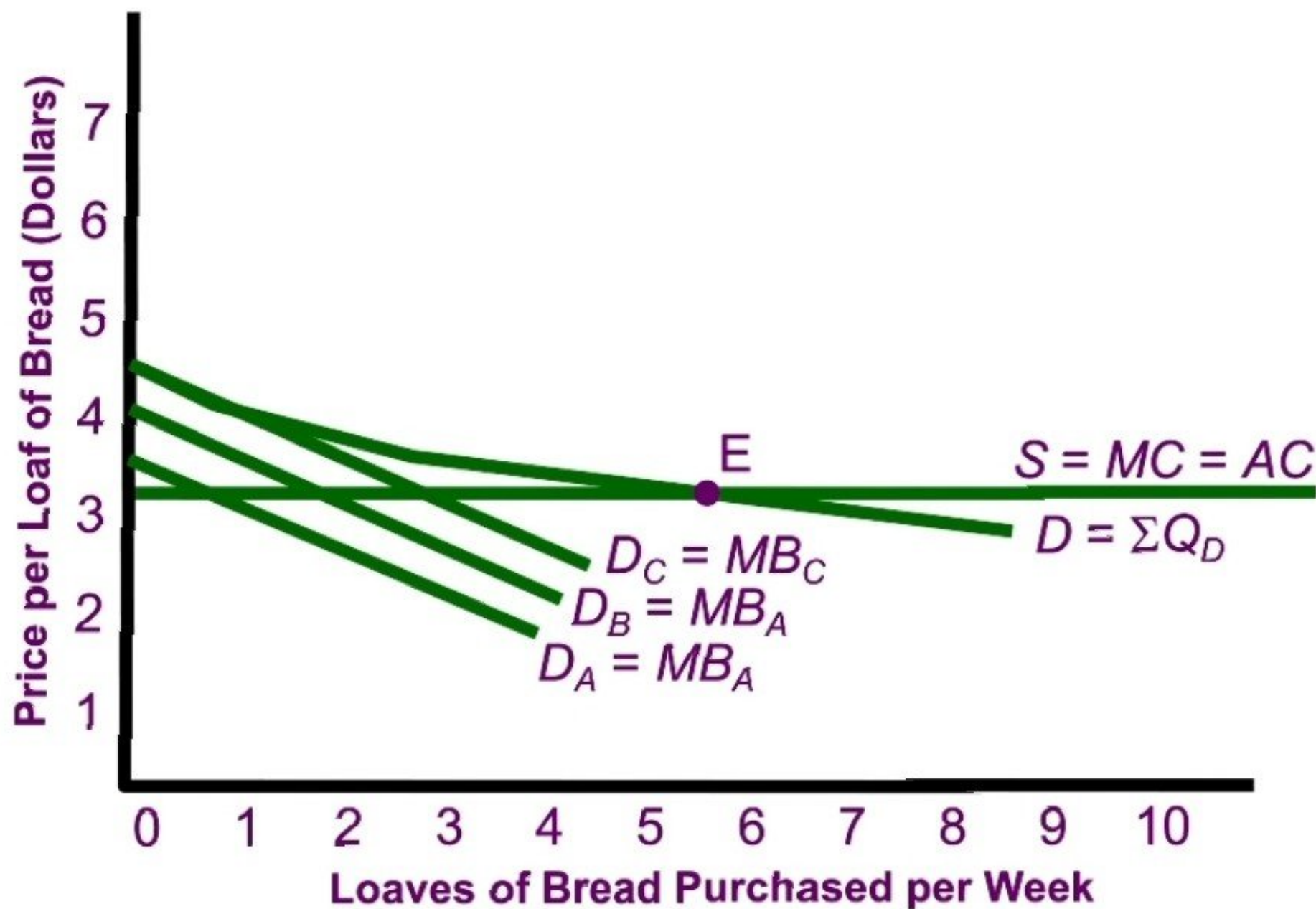
Price-excludable Public Goods

- Goods with benefits that can be priced
 - Membership rights to private clubs
 - Schools, hospitals
- Can be individually consumed and are subject to exclusion, but their production and consumption is likely to generate externalities.

Demand For a Pure Private and Public Good

- Demand for a Pure Private Good is derived by adding quantities at each price.
- Demand for a Pure Public Good is derived by adding how much people will be willing to pay at each quantity.

Figure 4.4 Demand For a Private Good



Demand For a Pure Private Good

- The demand for a private good is obtained by adding the quantities demanded by each consumer at each possible price. The efficient output is six units per week, which corresponds to point *E*.
- At a price of \$3 per loaf, $MBA + MBB + MBC = MC$.

Demand For a Public Good

- The demand curve for a pure public good is obtained by summing the individual marginal benefits at each quantity.
- A point on any of the individual demand curves represents the maximum amount that the consumer would pay to get *each unit* of the corresponding quantity of the public good.
- This maximum amount is the marginal benefit of security protection at each quantity. Each individual's demand curve shows how the marginal benefit of security guards declines as more are made available.

Figure 4.5 Demand For A Pure Public Good

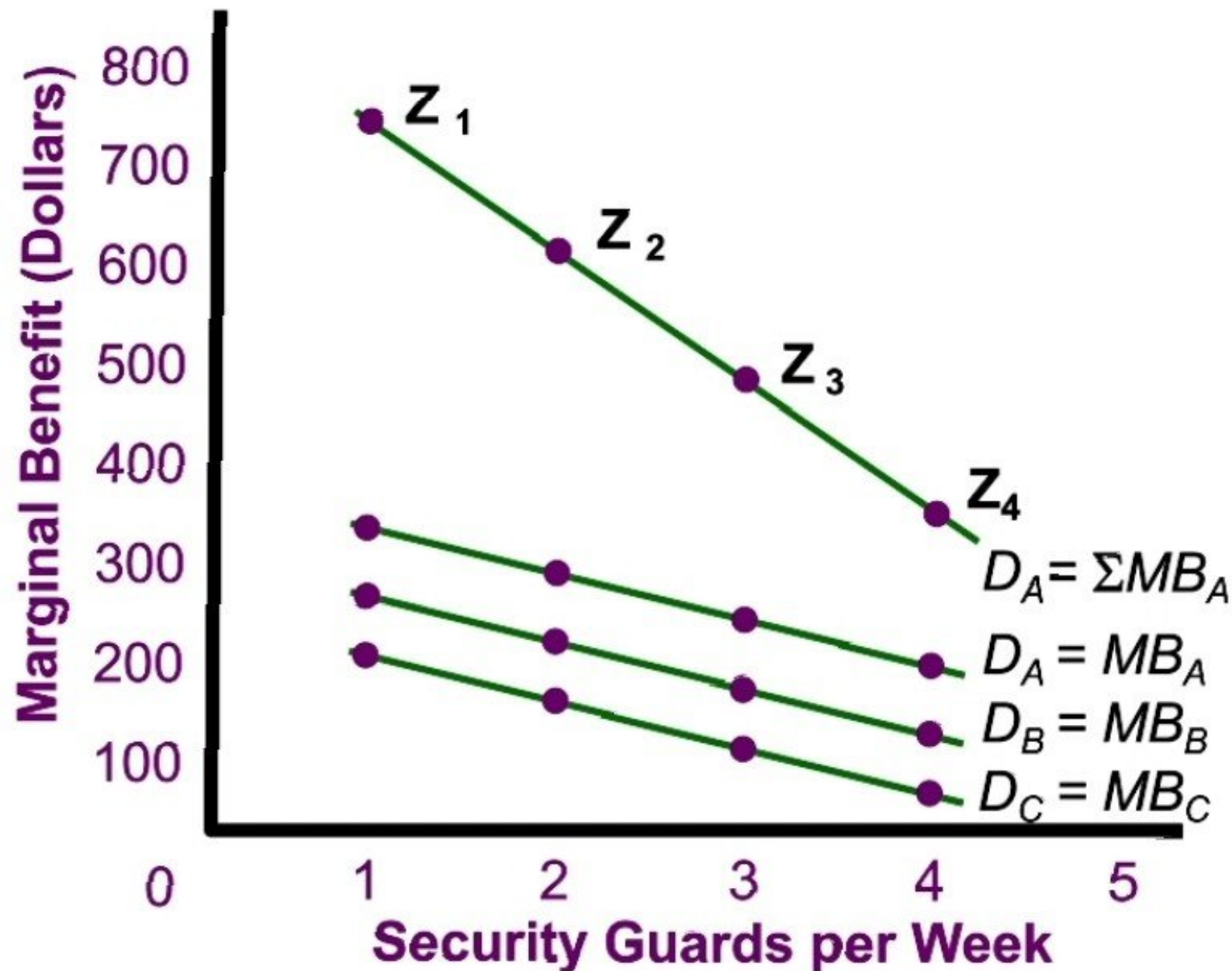
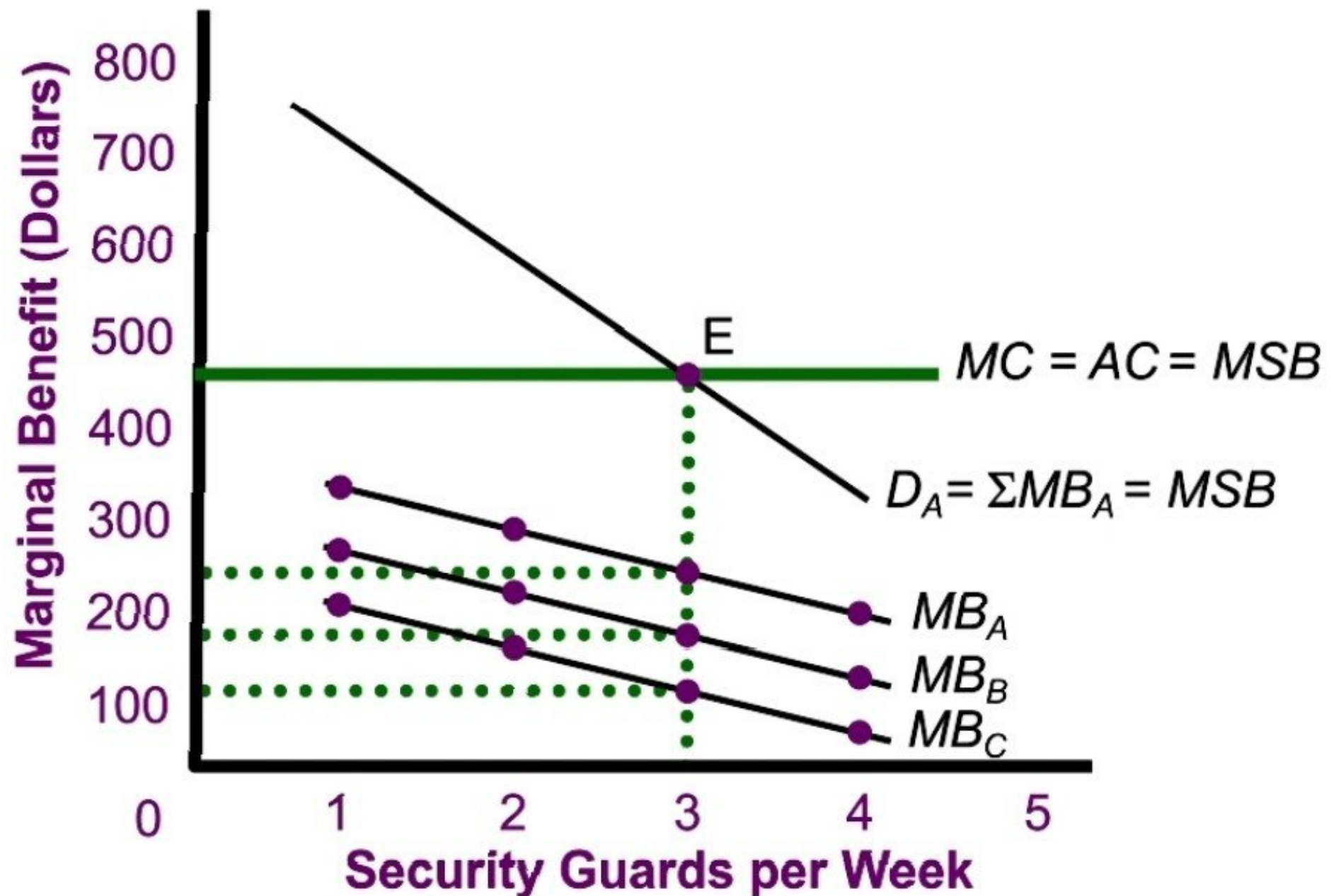


Figure 4.6 Efficient Output for a Pure Public Good



Efficient Output of a Pure Public Good

- The efficient output occurs at point E , which corresponds to three security guards per week. At that point, $\sum MB_i = MSC$.

$$D = \sum MB_i = MSB$$

- The socially optimal level of the public good requires that we set the Marginal Social Benefit of that good equal to its Marginal Social Cost. $MSB = MSC$

Free riding

- A **free rider** is a person who seeks to enjoy the benefits of a public good without contributing anything to the cost of financing the amount made available.
- The free-rider problem stems from the incentive people have to enjoy the external benefits financed by others, with no cost to themselves.
- Free riding can be a reasonable strategy for any one individual, provided that no penalty exists and that only a few individuals choose the strategy.

Compulsory Finance

- The free-rider problem is partially remedied by compulsory finance
- Taxation
- Payment for schooling, roads, postal services